

=> fil hcplus
FILE 'HCPLUS' ENTERED AT 18:56:15 ON 26 FEB 2009
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2009 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 26 Feb 2009 VOL 150 ISS 9
FILE LAST UPDATED: 25 Feb 2009 (20090225/ED)

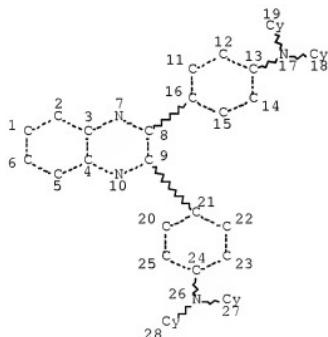
HCplus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2008.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d stat que 137
L27 STR



NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 28

STEREO ATTRIBUTES: NONE
 L29 34 SEA FILE=REGISTRY SSS FUL L27
 L37 28 SEA FILE=HCAPLUS ABB=ON PLU=ON L29

=>

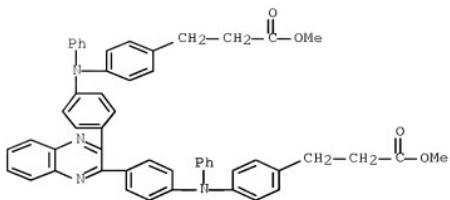
=> d ibib abs hitstr 137 1-28

L37 ANSWER 1 OF 28 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2008:1476948 HCAPLUS Full-text
 DOCUMENT NUMBER: 150:35796
 TITLE: Quinoxaline-containing diester compounds and polymers thereof
 INVENTOR(S): Horiba, Koji; Hirose, Hidekazu; Agata, Takeshi
 PATENT ASSIGNEE(S): Fuji Xerox Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 27pp.
 CODEN: USXECO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20080306239	A1	20081211	US 2008-41277	20080303
JP 200803169	A	20081218	JP 2007-151370	20070607
KR 2008107987	A	20081211	KR 2008-19610	20080303
CN 101318940	A	20081210	CN 2008-10082691	20080306
PRIORITY APPLN. INFO.:			JP 2007-151370	A 20070607
GI				

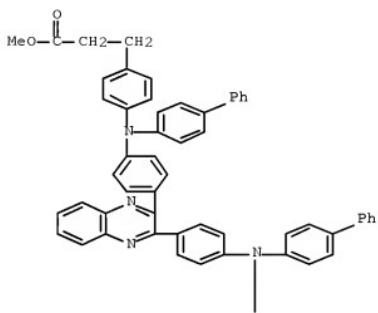
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The patent relates to the preparation of a quinoxaline-containing compound (I) and corresponding polyamine-polyesters; wherein Ar1 represents a substituted or unsubstituted monovalent aromatic group; and R1 represents a H atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, or a substituted or unsubstituted aralkyl group. Thus, a difunctional Me ester (II) prepared by the reaction of a dibromo precursor and a diarylamine was copolymerd. with ethylene glycol to obtain a polyamine-polyester.
 IT 1092116-27-2P 1092116-28-3P 1092116-30-7P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (quinoxaline-containing compds. and polymers thereof)
 RN 1092116-27-2 HCAPLUS
 CN INDEX NAME NOT YET ASSIGNED

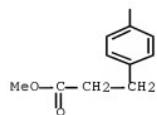


RN 1092116-28-3 HCAPLUS
 CN INDEX NAME NOT YET ASSIGNED

PAGE 1-A

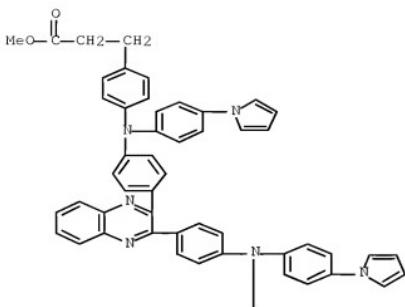


PAGE 2-A

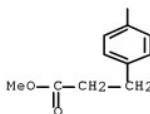


RN 1092116-30-7 HCAPLUS
 CN INDEX NAME NOT YET ASSIGNED

PAGE 1-A



PAGE 2-A



IT 1092116-31-8P 1092116-32-9P 1092116-33-0P

1092116-34-1P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (quinoxaline-containing compds. and polymers thereof)

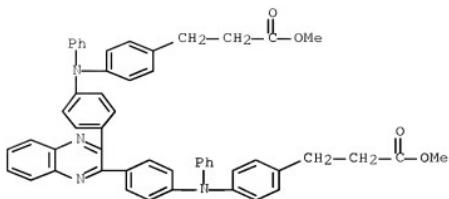
RN 1092116-31-8 HCAPLUS

CN Benzenepropanoic acid, 4,4'-[2,3-quinoxalinediylbis[4,1-phenylene(phenylimino)]]bis-, 1,1'-dimethyl ester, polymer with 1,2-ethanediol (CA INDEX NAME)

CM 1

CRN 1092116-27-2

CMF C52 H44 N4 O4

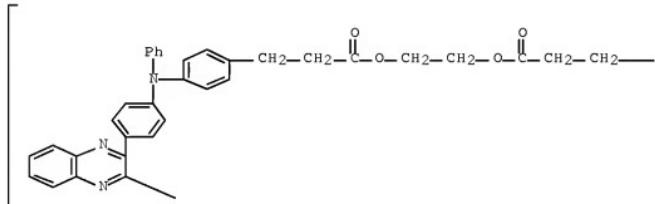


CM 2

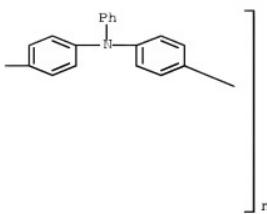
CRN 107-21-1
CMF C2 H6 O2HO—CH₂—CH₂—OH

RN 1092116-32-9 HCAPLUS
 CN Poly[2,3-quinoxalinediyl-1,4-phenylene(phenylimino)-1,4-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyoxy(1-oxo-1,3-propanediyl)-1,4-phenylene(phenylimino)-1,4-phenylene] (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



RN 1092116-33-0 HCAPLUS

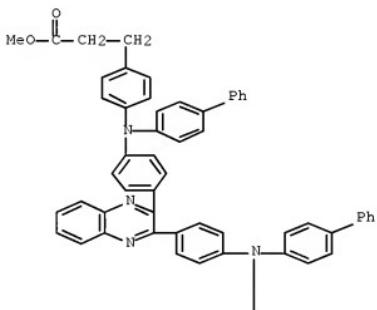
CN Benzenepropanoic acid, 4,4'-[2,3-quinoxalinediylbis[4,1-phenylene([1,1'-biphenyl]-4-ylimino)]bis-, 1,1'-dimethyl ester, polymer with 1,2-ethanediol (CA INDEX NAME)

CM 1

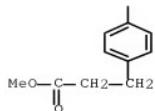
CRN 1092116-28-3

CMF C64 H52 N4 O4

PAGE 1-A



PAGE 2-A



CM 2

CRN 107-21-1

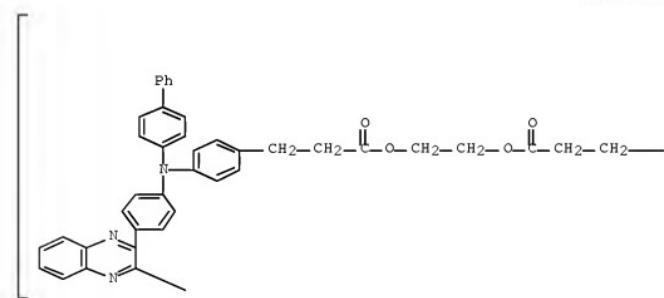
CMF C2 H6 O2

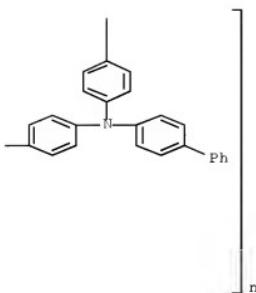


RN 1092116-34-1 HCPLUS

CN Poly[2,3-quinoxalinediyl-1,4-phenylene([1,1'-biphenyl]-4-ylimino)-1,4-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyl]oxy(1-oxo-1,3-propanediyl)-1,4-phenylene([1,1'-biphenyl]-4-ylimino)-1,4-phenylene] (CA INDEX NAME)

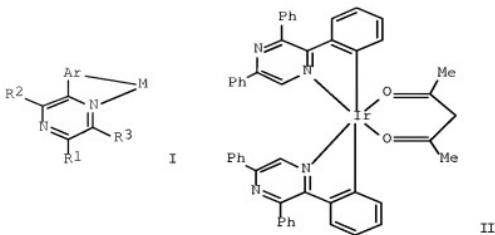
PAGE 1-A





L37 ANSWER 2 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 20081156667 HCPLUS Full-text
 DOCUMENT NUMBER: 149:412572
 TITLE: Composition, method for fabricating light-emitting element, light-emitting device, and electronic device
 INVENTOR(S): Inoue, Hideko; Seo, Satoshi; Shitagaki, Satoko
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 46pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20080233432	A1	20080925	US 2008-49480	20080317
WO 2008117633	A1	20081002	WO 2008-JP53732	20080226
W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
JP 2008266605	A	20081106	JP 2008-70695	20080319
PRIORITY APFLN. INFO.:			JP 2007-77986	A 20070323
GI				



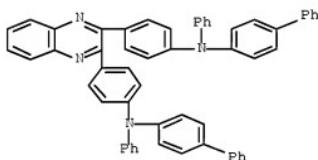
AB Solution organometallic complexes (I) ($M = Pt$ or Ir , $Ar = arylene$ group, $R1$ and $R3 = H$, alkyl or aryl and $R2 = alkyl$ or aryl) such as (acetylacetato)bis(2,3,5-triphenylpyrazinato)iridium (II) are used for fabricating light-emitting devices with high emission efficiency. Thus, desolving 0.194 g poly(*N*-vinylcarbazole), 0.117 g 4-(9H-carbazol-9-yl)-4'-(5-phenyl-1,3,4-oxadiazol-2-yl)triphenylamine and 0.017 g II in a mixture containing 15.4 mL toluene and 15.4 mL CHCl₃ gave a solution used for making light-emitting layer on a ITO glass substrate.

IT 928638-25-9

RL: TEM (Technical or engineered material use); USES (Uses)
(solution organometallic complexes used for fabricating light-emitting devices with high emission efficiency)

BN 928638-25-9 HCAPLUS

CN [1,1'-Biphenyl]-4-amine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[N-phenyl- (CA INDEX NAME)



L37 ANSWER 3 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2008:799538 HCPLUS Full-text
DOCUMENT NUMBER: 149:104867
TITLE: Cyclometalated phosphorescent organometallic complexes
of dibenz[f,h]quinoxaline as components for red
light-emitting devices
INVENTOR(S): Inoue, Hideko; Seo, Satoshi; Ohsawa, Nobuharu
PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 84pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1939208	A1	20080702	EP 2007-24831	20071220
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, RS				
JP 2008179607	A	20080807	JP 2007-299175	20071119
KR 2008061300	A	20080702	KR 2007-137226	20071226
US 20080160345	A1	20080703	US 2007-3438	20071226
CN 101274945	A	20081001	CN 2007-10305904	20071227
PRIORITY APPLN. INFO.:			JP 2006-350895	A 20061227
			JP 2007-299175	A 20071119

OTHER SOURCE(S): MARPAT 149:104867

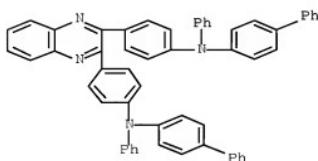
AB Group 9 and Group 10 metal 5-cyclometalated 2-Ar-3-R1-6-R2-7-R3-8-R4-9-R5-10-R6-11-R7-12-R8-dibenzo[f,h]quinoxaline (HL1) complexes, preferably iridium complexes [(L1-κN4,κC5)2IrL], [1, Ar = C6-25 aryl, preferably (un)substituted Ph; R1 = H, C1-4 alkyl, alkoxy, preferably R1 = H; R2-R8 = H, C1-4 alkyl, alkoxy, halo, optionally forming cycles, preferably R2 = R4 = R5 = R7 = R8 = H; L = β-diketonato, malonato, 2-picolinato, 2-pyrrolidinecarboxylato, salicylato, tetrakis(pyrazolyl)borato, 3-(2-pyridinyl)-1,2,4-triazolato], useful as phosphorescent substances, emitting red light with high efficiency for manufacturing of organometallic light-emitting devices, were prepared and tested for electroluminescent properties. In an example, the complex bis(2-Ph-dibenzo[f,h]quinoxalin-5-yl-κC5,κN4)iridium acetylacetone (1a) was prepared with 16% yield by cyclometalation of 2-Ph-dibenzo[f,h]quinoxaline with IrCl3 followed by complexation with Hacac, exhibiting red emission at 640 nm in a CH2Cl2 solution at room temperature. In another example, the electronic light-emitting device, having a light-emitting layer of consistent of a mixture of 2,3-bis[[4-(4-biphenyl)phenyl]aminophenyl]quinoxaline (BPAPQ) and 1a (1:0.06), exhibited red electroluminescence at (x,y) = (0.67,0.33), 14% external quantum efficiency, 15 cd A-1 current efficiency, at 4.6 V driving voltage and 1000 cd m-2 intensity.

IT 928638-25-9P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (iridium cyclometalated phosphorescent dibenzo[f,h]quinoxaline complexes as components for red light-emitting electronic devices)

RN 928638-25-9 HCPLUS

CN [1,1'-Biphenyl]-4-amine, N,N'-(2,3-quinoxalinediyli-4,1-phenylene)bis[N-phenyl- (CA INDEX NAME)]



REFERENCE COUNT:

1

THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 4 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2008:646422 HCPLUS [Full-text](#)
 DOCUMENT NUMBER: 148:596281
 TITLE: Organic light-emitting devices with dual mixed layer emitting structures and their fabrication
 INVENTOR(S): Sakata, Junichiro; Inoue, Hideko; Seo, Satoshi;
 Ohsawa, Nobuharu
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 50pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20080122350	A1	20080529	US 2007-984357	20071116
JP 2008160090	A	20080710	JP 2007-304178	20071126
KR 2008048977	A	20080603	KR 2007-122999	20071129

PRIORITY APPLN. INFO.:

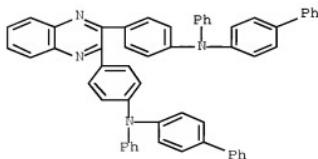
AB Light-emitting elements comprising an anode; a first layer containing a first organic compound and a third organic compound over the anode; a second layer containing a second organic compound and the third organic compound over the first layer; and a cathode over the second layer are described in which the first layer is in contact with the second layer on the anode side and the first and second layers are a light-emitting layer, the first organic compound has an electron transporting property, the second organic compound has a hole transporting property, and the third organic compound has an electron trapping property and/or the LUMO level of the third organic compound is lower than that of the second organic compound by ≥ 0.3 eV. Methods for fabricating the devices are also described.

IT 928638-25-9, 2,3-Bis[4-[N-(4-biphenylyl)-N-phenylamino]phenyl]quinoxaline

RL: TEM (Technical or engineered material use); USES (Uses)
 (organic light-emitting devices with dual mixed layer emitting structures and their fabrication)

RN 928638-25-9 HCPLUS

CN [1,1'-Biphenyl]-4-amine, N,N'-(2,3-quinoxalinediyl-4,1-phenylene)bis[N-phenyl- (CA INDEX NAME)]



L37 ANSWER 5 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2008:32418 HCPLUS [Full-text](#)

DOCUMENT NUMBER: 148:131624
 TITLE: Light-emitting devices with charge carrier control layers including charge carrier-transporting and -trapping materials and electronic devices using them
 INVENTOR(S): Suzuki, Tsunenori; Seo, Satoshi; Nomura, Ryoji
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 89pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1876658	A2	20080109	EP 2007-11708	20070614
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU				
US 20080007164	A1	20080110	US 2007-821522	20070622
CN 101101974	A	20080109	CN 2007-10127178	20070704
KR 2008004381	A	20080109	KR 2007-66875	20070704
JP 2008263155	A	20081030	JP 2007-176201	20070704
PRIORITY APPLN. INFO.:			JP 2006-184653	A 20060704
			JP 2006-327610	A 20061204
			JP 2007-73089	A 20070320

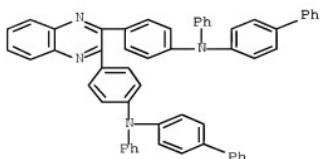
AB Light-emitting devices comprising: a first electrode; a second electrode; a light-emitting layer formed between the electrodes; and a layer for controlling the movement of carriers formed between the light-emitting layer and the second electrode are described in which the layer for controlling the movement of carriers contains a first organic compound and a second organic compound, the first organic compound having charge carrier-transporting properties while the second organic compound has charge carrier-trapping property and in which the weight percent of the first organic compound is higher than the weight percent of the second organic compound in the layer for controlling the movement of carriers. The light-emitting layer emits light when a voltage is applied so that a potential of the first electrode is higher than a potential of the second electrode. Electronic devices incorporating the light-emitting devices (e.g., in displays) are also described.

IT 928638-25-9

RL: TEM (Technical or engineered material use); USES (Uses)
 (light-emitting devices with charge carrier control layers including charge carrier-transporting and -trapping materials and electronic devices using them)

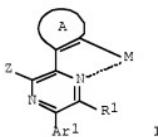
RN 928638-25-9 HCPLUS

CN [1,1'-Biphenyl]-4-amine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[N-phenyl- (CA INDEX NAME)



L37 ANSWER 6 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 20071176040 HCPLUS Full-text
 DOCUMENT NUMBER: 147:493772
 TITLE: Organometallic complex and light emitting element,
 light emitting device, and electronic device using the
 organometallic complex
 INVENTOR(S): Inoue, Hideko; Seo, Satoshi; Ohsawa, Nobuharu
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 108pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20070244320	A1	20071018	US 2007-725971	20070320
JP 2007284432	A	20071101	JP 2007-73216	20070320
EP 1873163	A1	20080102	EP 2007-5200	20070320
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU				
KR 2007095802	A	20071001	KR 2007-27482	20070321
CN 101270133	A	20080924	CN 2007-10087859	20070321
PRIORITY APPLN. INFO.:			JP 2006-77899	A 20060321
OTHER SOURCE(S):	MARPAT	147:493772		
GI				



AB An organometallic complex having a structure represented by a general formula I, wherein A represents an aromatic hydrocarbon group having 6-25 carbon atoms; Z represents any one of hydrogen, an alkyl group having 1-4 carbon atoms, an alkoxy group having 1-4 carbon atoms, or an aryl group having 6-25 carbon atoms; Ar1 represents an aryl group having 6-25 carbon atoms; R1 represents any one of hydrogen, an alkyl group having 1-4 carbon atoms, or an alkoxy group having 1-4 carbon atoms; and M is a central metal and represents an element belonging to Group 9 or Group 10, is described. A light emitting device comprising the organometallic complex is also described. An light emitting display device or an electronic device having a display portion comprising the organometallic complex is also described.

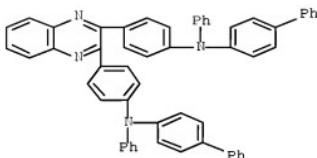
IT 928638-25-9

RL: TEM (Technical or engineered material use); USES (Uses)
 (light emitting layer; organometallic complex and light emitting

element, light emitting device, and electronic device using the organometallic complex)

RN 920638-25-9 HCPLUS

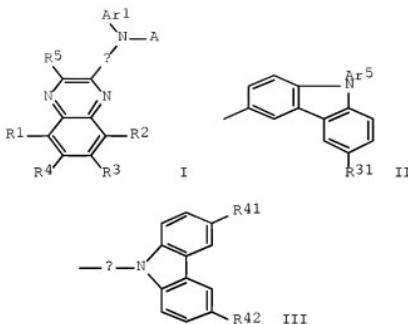
CN [1,1'-Biphenyl]-4-amine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[N-phenyl- (CA INDEX NAME)



L37 ANSWER 7 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 20071086344 HCPLUS [Full-text](#)
 DOCUMENT NUMBER: 147:416047
 TITLE: Quinoxaline derivatives and light-emitting element,
 light-emitting device, electronic device using the
 quinoxaline derivative
 INVENTOR(S): Egawa, Masakazu; Kawakami, Sachiko; Nakashima, Harue;
 Ohsawa, Nobuharu; Seo, Satoshi; Nomura, Ryoji
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 367pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007108403	A1	20070927	WO 2007-JP55335	20070312
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, RU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
EP 2004616	A1	20081224	EP 2007-738781	20070312
R: DE, FI, FR, GB, NL				
US 20070222374	A1	20070927	US 2007-723385	20070319
JP 2007284434	A	20071101	JP 2007-73638	20070320
PRIORITY APPLN. INFO.:			JP 2006-77900	A 20060321
			WO 2007-JP55335	W 20070312

OTHER SOURCE(S): MARPAT 147:416047
 GI



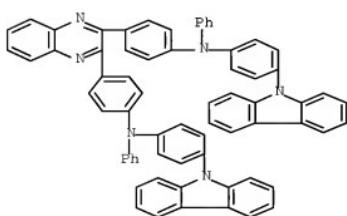
AB The title quinoxaline derivs. are described by the general formula I (R1-4 = independently selected H, Cl-4 alkyl, or C6-25 aryl; R5 = H, Cl-4 alkyl, or C6-25 aryl; Ar1 = C6-25 aryl; α = C6-25 arylene; A = $-\beta\text{-N}(\text{Ar3})(\text{Ar4})$, II, or III; β = C6-25 arylene; Ar3-5 = C6-25 aryl; R31, R41, and R42 = independently selected H, Cl-4 alkyl, or C6-25 aryl; and γ = C6-25 arylene). Light-emitting elements comprising a layer including a quinoxaline derivative (e.g., as a host) between electrodes, light-emitting devices, including displays, incorporating the elements, and electronic devices incorporating the displays are also described.

IT 950903-01-2P 950903-02-3P

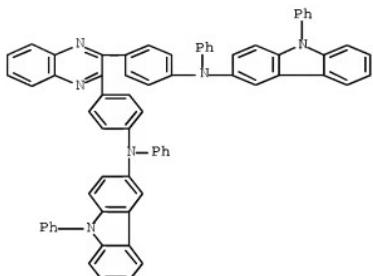
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(quinoxaline derivs. and light-emitting elements and devices and electronic devices using devices in displays)

RN 950903-01-2 HCAPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N-[4-(9H-carbazol-9-yl)phenyl]-N-phenyl- (CA INDEX NAME)



RN 950903-02-3 HCPLUS
 CN 9H-Carbazol-3-amine, N,N'-(2,3-quinoxalinediylid-4,1-phenylene)bis[N,9-diphenyl- (CA INDEX NAME)]



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 8 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2007:997266 HCPLUS [Full-text](#)

DOCUMENT NUMBER: 147:311095

TITLE: Laser ablation deposition of organic films with superior high density and apparatuses therefor

INVENTOR(S): Yamazaki, Shunpei; Seo, Satoshi; Nakamura, Yasuo
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 23pp.

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007224417	A	20070906	JP 2007-14404	20070125
PRIORITY APPLN. INFO.:			JP 2006-19881	A 20060127

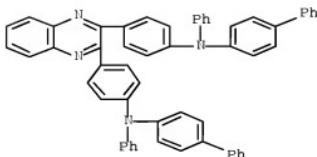
AB The films, e.g., organic films for electroluminescent devices high luminescent efficacy, are deposited on susceptor-fixed substrates by evaporating organic compound sources and irradiating laser beams to the source vapors. The laser beams may have wavelength capable of exciting the organic compds. Also claimed are laser systems so that the laser beams are approx. parallel to the substrate surface.

IT 928638-25-9P

RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(emitting layers; laser ablation deposition of organic functional films with superior high d. for electroluminescent devices)

RN 928638-25-9 HCPLUS
 CN [1,1'-Biphenyl]-4-amine, N,N'-(2,3-quinoxalinediylidene)-bis[N-phenyl- (CA INDEX NAME)



L37 ANSWER 9 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2007:438943 HCPLUS Full-text
 DOCUMENT NUMBER: 146:431043
 TITLE: Light emitting element, light emitting device, and electronic apparatus
 INVENTOR(S): Kawakami, Takahiro; Sakata, Junichiro; Ikeda, Hisao; Aoyama, Tomoya
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 49pp.
 CODEN: USXKCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20070085106	A1	20070419	US 2006-580410	20061013
EP 1777758	A1	20070425	EP 2006-18565	20060905
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU				
JP 2007142378	A	20070607	JP 2006-282199	20061017
KR 2007042485	A	20070423	KR 2006-101476	20061018
CN 1953235	A	20070425	CN 2006-10135621	20061018
PRIORITY APPLN. INFO.:			JP 2005-303475	A 20051018

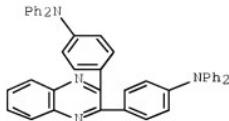
AB A light emitting element is described comprising a first electrode; a light emitting layer containing a light emitting substance over the first electrode; a layer containing bathophenanthroline over the light emitting layer containing the light emitting substance; and a second electrode over the layer containing bathophenanthroline, wherein the light emitting substance emits light when a voltage is applied so that a potential of the first electrode is higher than a potential of the second electrode, and wherein a layer containing one or more of lithium fluoride, cesium fluoride, and calcium fluoride is provided between the layer containing bathophenanthroline and the second electrode.

IT 787640-67-9

RL: TEM (Technical or engineered material use); USES (Uses)
 (light emitting layer; light emitting device having bathophenanthroline between electrodes)

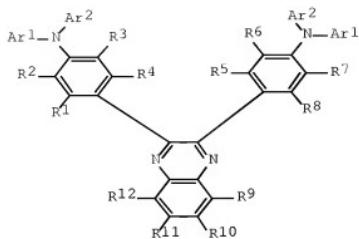
RN 787640-67-9 HCPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyi)bis[N,N-diphenyl- (CA INDEX NAME)



L37 ANSWER 10 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2007:286943 HCPLUS Full-text
 DOCUMENT NUMBER: 146:325837
 TITLE: Quinoxaline derivative, and light emitting element,
 light emitting device, and electronic appliance using
 the same
 INVENTOR(S): Egawa, Masakazu; Kawakami, Sachiko; Ohsawa, Nobuharu;
 Inoue, Hideko; Seo, Satoshi; Nomura, Ryoji
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 80pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20070059553	A1	20070315	US 2006-518484	20060908
WO 2007032258	A1	20070322	WO 2006-JP317806	20060901
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
JP 2007099766	A	20070419	JP 2006-245094	20060911
CN 101263126	A	20080910	CN 2006-80033318	20080311
KR 2008055850	A	20080619	KR 2008-706561	20080318
PRIORITY APPLN. INFO.:			JP 2005-264253	A 20050912
			WO 2006-JP317806	W 20060901
OTHER SOURCE(S): GI	MARPAT	146:325837		



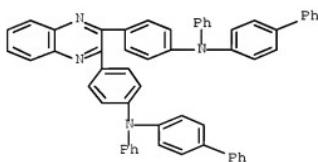
AB A quinoxaline derivative expressed by the general formula I is described where each of R1 to R12 represents one of a hydrogen atom, a halogen atom, an alkyl group, an alkoxy group, an acyl group, a dialkyl amino group, a diarylamino group, a substituted or unsubstituted vinyl group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heterocycle group; Ar1 represents one of a substituted or unsubstituted biphenyl group and a substituted or unsubstituted terphenyl group, and Ar2 represents one of a substituted or unsubstituted Ph group, a substituted or unsubstituted biphenyl group, a substituted or unsubstituted terphenyl group, and a substituted or unsubstituted monocyclic heterocycle group. A light emitting element comprising the quinoxaline derivative is also described. A display device comprising the quinoxaline derivative is also described.

IT 928638-25-9P 928638-30-6P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (light emitting layer; quinoxaline derivative, and light emitting element and display devices using the same)

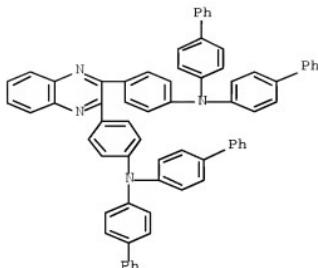
RN 928638-25-9 HCPLUS

CN [1,1'-Biphenyl]-4-amine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[N-phenyl- (CA INDEX NAME)



RN 928638-30-6 HCPLUS

CN [1,1'-Biphenyl]-4-amine, N-[1,1'-biphenyl]-4-yl-N-[4-[3-[4-[bis([1,1'-biphenyl]-4-yl)amino]phenyl]-2-quinoxalinyl]phenyl]- (CA INDEX NAME)



L37 ANSWER 11 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2006:1357148 HCPLUS Full-text
 DOCUMENT NUMBER: 146:110888
 TITLE: Light-emitting devices with anthracene derivative-metal oxide composite layers and electronic appliances using the same
 INVENTOR(S): Iwaki, Yuji; Seo, Satoshi; Kawakami, Takahiro; Ikeda, Hisao; Sakata, Junichiro; Aoyama, Tomoya
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 80 pp.
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060292394	A1	20061228	US 2006-452979	20060615
JP 2008021665	A	20080131	JP 2006-171076	20060621
CN 18855585	A	20061227	CN 2006-10094005	20060622
KR 2006134849	A	20061228	KR 2006-56385	20060622
PRIORITY APPLN. INFO.:			JP 2005-181806	A 20050622
			JP 2005-213708	A 20050725
			JP 2006-166291	T0 20060615

AB Light-emitting devices comprising a first electrode; a second electrode; and a light-emitting layer formed between the electrodes are described which are provided with a mixed layer, formed between the first electrode and the light-emitting layer, comprising an anthracene derivative and a metal oxide showing an electron accepting property with respect to the anthracene derivative. Light-emitting devices are also described which comprise a first electrode; a second electrode; n ($n \geq 2$) light-emitting layers formed between the first electrode and the second electrode; and a first mixed layer formed between an m-th light-emitting layer ($1 \leq m \leq n-1$) and an (m+1)-th light-emitting layer; and a second mixed layer formed between the m-th light emitting layer and the (m+1)-th light emitting layer, the first mixed layer being closer to the first electrode than the second electrode and containing a substance having an electron transporting property or a bipolar substance and a substance selected from alkaline earth metals, alkali metal oxides, alkaline earth metal oxides,

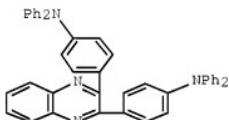
alkali metal fluorides, and alkaline earth metal fluorides and the second mixed layer contains an an anthracene derivative and a metal oxide showing an electron accepting property with respect to the anthracene derivative. The light-emitting devices may further comprise a hole-transporting layer formed between the mixed layer and the light-emitting layer. Electronic appliances comprising the light-emitting devices are also described.

IT 787640-67-9 913655-59-1

RL: TEM (Technical or engineered material use); USES (Uses)
(hole-transporting material; light-emitting devices with anthracene derivative-metal oxide composite layers and electronic appliances using them)

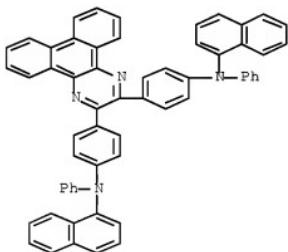
RN 787640-67-9 HCPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (CA INDEX NAME)



RN 913655-59-1 HCPLUS

CN 1-Naphthalenamine, N,N'-(dibenzo[f,h]quinoxaline-2,3-diyl)di-4,1-phenylenebis[N-phenyl- (CA INDEX NAME)



L37 ANSWER 12 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:1156032 HCPLUS [Full-text](#)

DOCUMENT NUMBER: 145:480151

TITLE: Light emitting element with a mixed layer including an aromatic hydrocarbon and a metal oxide, light emitting device, and electronic device

INVENTOR(S): Iwaki, Yuji; Seo, Satoshi; Kawakami, Takahiro; Ikeda, Hisao; Sakata, Junichiro

PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
SOURCE: PCT Int. Appl., 79pp.

CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006115232	A1	20061102	WO 2006-JP308481	20060417
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
JP 2006324650	A	20061130	JP 2006-113439	20060417
US 20090026922	A1	20090129	US 2007-918569	20071016
KR 2008005441	A	20080111	KR 2007-727093	20071121
CN 101203968	A	20080618	CN 2006-80022551	20071221
PRIORITY APPLN. INFO.:			JP 2005-124296	A 20050421
			WO 2006-JP308481	W 20060417

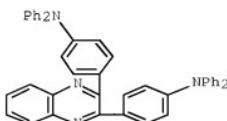
AB One aspect of the present invention is a light emitting element having a layer including an aromatic hydrocarbon and a metal oxide between a pair of electrodes. The kind of aromatic hydrocarbon is not particularly limited; however, an aromatic hydrocarbon having hole mobility of 1×10^{-6} cm²/Vs or more is preferable. Examples of such aromatic hydrocarbons are 2-tert-butyl-9,10-di(2-naphthyl)anthracene, anthracene, 9,10-diphenylanthracene, tetracene, rubrene, perylene, and 2,5,8,11-tetra(tert-butyl)perylene. As the metal oxide, a metal which shows an electron-accepting property to the aromatic hydrocarbon is preferable, with examples such as molybdenum oxide, vanadium oxide, ruthenium oxide, and rhenium oxide.

IT 787640-67-9 913655-59-1

RL: DEV (Device component use)
 (hole-transporting layer; light emitting element with mixed layer
 including aromatic hydrocarbon and metal oxide, light emitting device, and
 electronic device)

RN 787640-67-9 HCPLUS

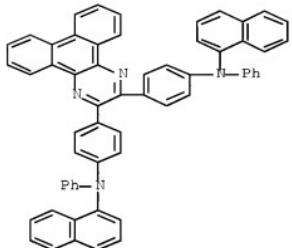
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (CA INDEX NAME)



RN 913655-59-1 HCPLUS

CN 1-Naphthalenamine, N,N'-(dibenzo[f,h]quinoxaline-2,3-diyl)di-4,1-

phenylene)bis[N-phenyl- (CA INDEX NAME)

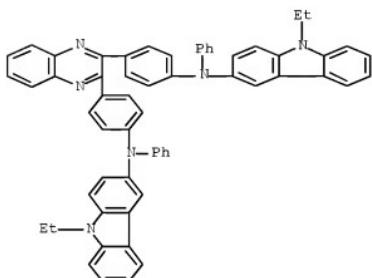


REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 13 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2006:827360 HCPLUS [Full-text](#)
 DOCUMENT NUMBER: 146:215346
 TITLE: Dibenzothiophene/oxide and quinoxaline/pyrazine derivatives serving as electron-transport materials
 Huang, Tai-Hsiang; Whang, Wha-Tzong; Shen, Juih Yi; Wen, Yuh-Sheng; Lin, Jiann T.; Ke, Tung-Huei; Chen, Li-Yin; Wu, Chung-Chih
 AUTHOR(S):
 CORPORATE SOURCE: Department of Materials Science and Engineering,
 National Chiao Tung University, Hsin Chu, 300, Taiwan
 SOURCE: Advanced Functional Materials (2006), 16(11), 1449-1456
 PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB 2,8-Disubstituted dibenzothiophene and 2,8-disubstituted dibenzothiophene-S,S-dioxide derivs. containing quinoxaline and pyrazine moieties were synthesized via three key steps: (i) palladium-catalyzed Sonogashira coupling reaction to form dialkynes; (ii) conversion of the dialkynes to diones; and (iii) condensation of the diones with diamines. Single-crystal characterization of 2,8-di(6,7-dimethyl-3-phenyl-2-quinoxalinyl)-5H-5λ₆-dibenzo[b,d]thiophene-5,5-dione indicates a triclinic crystal structure with space group P1 and a nonplanar structure. These new materials are amorphous, with glass-transition temps. ranging from 132 to 194°. (Cpd) exhibit high electron mobilities and serve as effective electron-transport materials for organic light-emitting devices. Double-layer devices are fabricated with the structure indium tin oxide (ITO)/Qn/Cpd/LiF/Al, where yellow-emitting 2,3-bis[4-(N-phenyl-9-ethyl-3-carbazolylamino)phenyl]quinoxaline (Qn) serves as the emitting layer. An external quantum efficiency of 1.41 %, a power efficiency of 4.94 lm W-1, and a current efficiency of 1.62 cd A-1 are achieved at a c.d. of 100 mA cm-2.
 IT 436800-53-2
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(dibenzothiophene/oxide and quinoxaline/pyrazine derivs. serving as electron-transport materials for electroluminescent materials for organic LED)

RN 436800-53-2 HCAPLUS
 CN 9H-Carbazol-3-amine, N,N'-(2,3-quinoxalinediylid-4,1-phenylene)bis[9-ethyl-N-phenyl- (CA INDEX NAME)]

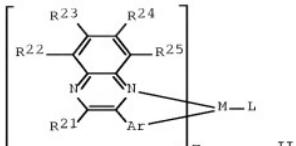
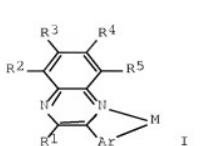


REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

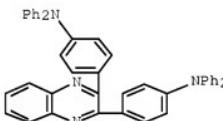
L37 ANSWER 14 OF 28 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2006:564313 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 145:53427
 TITLE: Group 9 or 10 metal complexes, electroluminescent devices having layer containing them, and use of the devices
 INVENTOR(S): Inoue, Eiko; Seo, Satoshi; Shimogaki, Tomoko; Abe, Hiroko
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 67 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006151887	A	20060615	JP 2004-346234	20041130
PRIORITY APPLN. INFO.:			JP 2004-346234	

OTHER SOURCE(S): MARPAT 145:53427
 GI



- AB The complexes are represented by I (R1-R5 = H, halo, acyl, alkyl, alkoxy, aryl, cyano, heterocycl; Ar = aryl, heterocycl; M = group 9 or 10 element) or II (R21-R25 = any group given for R1-R5; Ar, M = same as above; n = 1 when M = group 10 element or 2 when M = group 9 element; L = monoanionic ligand having β -diketone structure, monoanionic bidentate ligand containing carboxy group or phenolic OH). Also claimed are electroluminescent apparatus having the electroluminescent devices and electronic instruments having the apparatus in the display. I or II emit phosphorescence and are also useful as sensitizers for fluorescent compds.
- IT 787640-67-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of group 9 or 10 metal arylquinoxaline complexes emitting phosphorescence and electroluminescent devices using them)
- RN 787640-67-9 HCAPLUS
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (CA INDEX NAME)

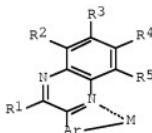


- L37 ANSWER 15 OF 28 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2006:544401 HCAPLUS [Full-text](#)
DOCUMENT NUMBER: 145:53407
TITLE: A phosphorescent organometallic complex for use as a light-emitting element having good chromaticity for light-emitting devices
INVENTOR(S): Inoue, Hideko; Seo, Satoshi; Ohsawa, Nobuharu
PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
SOURCE: PCT Int. Appl., 139 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
------------	------	------	-----------------	------

WO 2006059802	A1	20060608	WO 2005-JP22593	20051201
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UC, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM	A	20060713	JP 2005-347754	20051201
JP 2006182772	A1	20080327	US 2007-791832	20070530
US 20080076922	A	20070827	KR 2007-715287	20070703
KR 2007086916	A	20080123	CN 2005-80047485	20070730
CN 101111506			JP 2004-351770	A 20041203
PRIORITY APPLN. INFO.:			WO 2005-JP22593	W 20051201

OTHER SOURCE(S): MARPAT 145:53407
GI



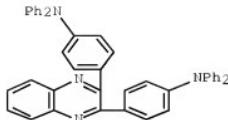
I

AB A phosphorescent organometallic complex is described for use as a light-emitting element having good chromaticity for light-emitting devices. Thus, the organometallic complex includes a structure I (R1 = C1-4 alkyl; R2-R5 = H, halogen, acyl, alkyl, alkoxy, aryl, CN, heterocycle; Ar = aryl, heterocycle, preferably, an aryl group has an electron withdrawing group or a heterocyclic group has an electron withdrawing group; M = Group 9- or Group 10 element).
IT 787640-67-9

RL: TEM (Technical or engineered material use); USES (Uses)
(characterization of light-emitting devices containing phosphorescent organometallic complexes)

RN 787640-67-9 HCPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (CA INDEX NAME)



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 16 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2006:481507 HCPLUS Full-text
 DOCUMENT NUMBER: 145:396961
 TITLE: Fluorescence Study of Dehydroabietic Acid-Based Bipolar Arylamine-Quinoxalines
 AUTHOR(S): Burrows, H. D.; Fonseca, S. M.; Gigante, B.; Esteves, M. A.; Guerreiro, A. M.
 CORPORATE SOURCE: Departamento de Quimica, Universidade de Coimbra, Coimbra, 3004-535, Port.
 SOURCE: Journal of Fluorescence (2006), 16(2), 227-231
 PUBLISHER: Springer
 DOCUMENT TYPE: Journal
 LANGUAGE: English

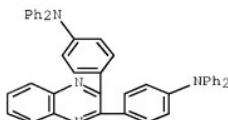
AB The absorption and fluorescence spectra, lifetimes and quantum yields of a series of triarylaminoquinoxaline bipolar compds., with and without the bulky dehydroabietic acid group, have been studied in toluene solution. This bulky group is introduced to improve solubility and thermal properties of these systems. It is shown that this does not affect their spectral or photophys. behavior. The compds. show relatively strong fluorescence, with the emission maximum strongly dependent upon the substituents present. Oxidation potentials have also been determined in acetonitrile solution, and again indicate that introduction of the resin acid moiety has no effect on these properties.

IT 787640-67-9 911303-76-9 911303-77-0
 911303-78-1 911303-79-2 911303-80-5
 911303-81-6 911303-82-7

RL: PRP (Properties)
 (fluorescence study of dehydroabietic acid-based bipolar arylamine-quinoxalines)

RN 787640-67-9 HCPLUS

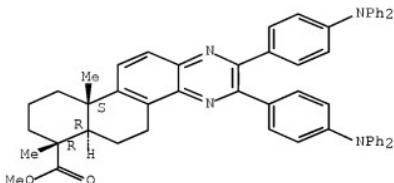
CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (CA INDEX NAME)



RN 911303-76-9 HCPLUS

CN Naphtho[2,1-f]quinoxaline-7-carboxylic acid,
 2,3-bis[4-(diphenylamino)phenyl]-5,6,6a,7,8,9,10,10a-octahydro-7,10a-dimethyl-, methyl ester, (6aR,7R,10aS)- (CA INDEX NAME)

Absolute stereochemistry.

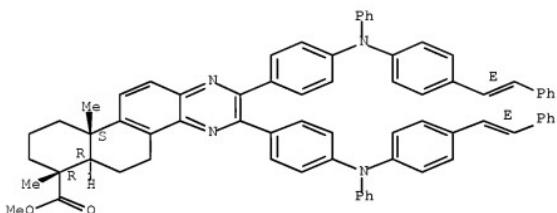


RN 911303-77-0 HCAPLUS

CN Naphtho[2,1-f]quinoxaline-7-carboxylic acid,
 5,6,6a,7,8,9,10,10a-octahydro-7,10a-dimethyl-2,3-bis[4-[phenyl[4-[(1E)-2-phenylethenyl]phenyl]amino]phenyl]-, methyl ester, (6aR,7R,10aS)- (CA INDEX NAME)

Absolute stereochemistry.

Double bond geometry as shown.



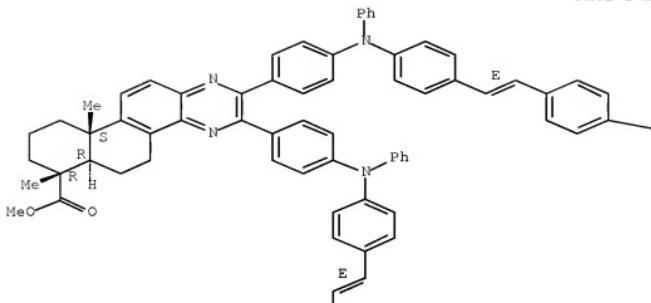
RN 911303-78-1 HCAPLUS

CN Naphtho[2,1-f]quinoxaline-7-carboxylic acid,
 5,6,6a,7,8,9,10,10a-octahydro-2,3-bis[4-[(1E)-2-(4-methoxyphenyl)ethenyl]phenyl]phenylamino]phenyl]-7,10a-dimethyl-, methyl ester, (6aR,7R,10aS)- (CA INDEX NAME)

Absolute stereochemistry.

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B

—OMe

PAGE 2-A

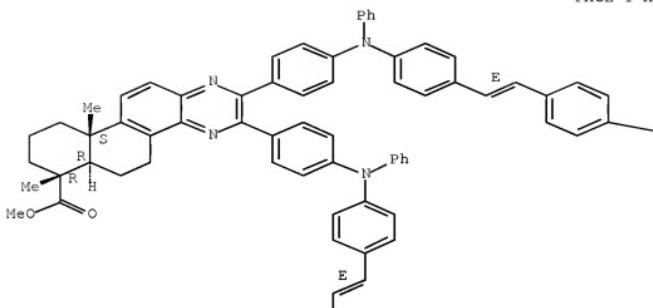


RN 911303-79-2 HCPLUS

CN Naphtho[2,1-f]quinoxaline-7-carboxylic acid,
 5,6,6a,7,8,9,10,10a-octahydro-7,10a-dimethyl-2,3-bis[4-[(4-[(1E)-2-(4-nitrophenyl)ethenyl]phenyl)phenylaminophenyl]-, methyl ester,
 (6aR,7R,10aS)- (CA INDEX NAME)

Absolute stereochemistry.
 Double bond geometry as shown.

PAGE 1-A



PAGE 1-B

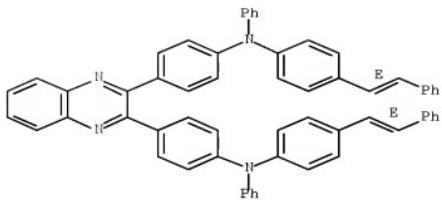
~~—NO₂~~

PAGE 2-A



RN 911303-80-5 HCPLUS
 CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N-phenyl-N-[4-[(1E)-2-phenylethenyl]phenyl]- (CA INDEX NAME)

Double bond geometry as shown.



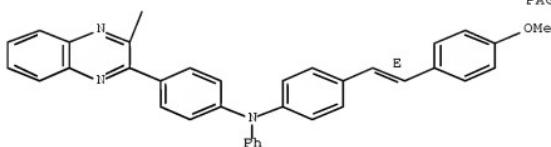
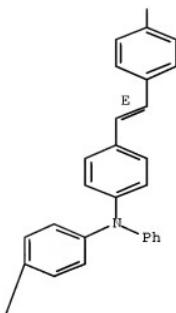
RN 911303-81-6 HCPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyi)bis[N-[4-[(1E)-2-(4-methoxyphenyl)ethenyl]phenyl]-N-phenyl- (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A

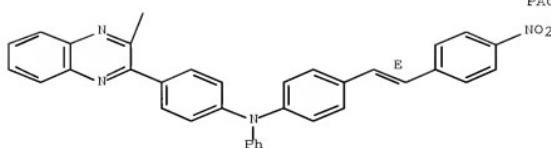
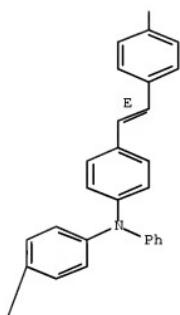




RN 911303-82-7 HCAPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyi)bis[N-[4-[(1E)-2-(4-nitrophenyl)ethenyl]phenyl]-N-phenyl- (CA INDEX NAME)

Double bond geometry as shown.



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 17 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2006:437747 HCPLUS [Full-text](#)
 DOCUMENT NUMBER: 144:458225
 TITLE: Light-emitting element and light emitting device using the same
 INVENTOR(S): Kumaki, Daisuke; Seo, Satoshi
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 90 pp.
 CODEN: PIXX2D
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006049323	A1	20060511	WO 2005-JP20663	20051104
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
JP 2006156997	A	20060615	JP 2005-321041	20051104
CN 101053091	A	20071010	CN 2005-80037622	20051104
US 20070170847	A1	20070726	US 2006-584333	20060623
PRIORITY APPLN. INFO.:			JP 2004-322995	A 20041105
			WO 2005-JP20663	W 20051104

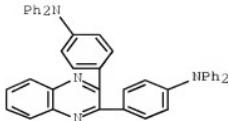
AB Light-emitting elements comprising (in order) a first electrode, a first layer (or first region), a second layer (or second region), a layer containing a light-emitting material, and a second electrode are described in which the first layers includes an aromatic amine compound and a first substance that can act as an electron acceptor to the aromatic amine compound and the second layer includes a second substance which is a better electron transporter than a hole transporter, and a third substance showing an electron donating property to the second substance. The third substance may be an alkali metal oxide or an alkaline earth metal oxide. Displays employing the elements (and devices incorporating the displays) are also described.

IT 787640-67-9

RL: DEV (Device component use); USES (Uses)
 (organic light-emitting device structures using mixed material layers)

RN 787640-67-9 HCPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (CA INDEX NAME)



REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 18 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2006:437531 HCPLUS Full-text
 DOCUMENT NUMBER: 144:458222
 TITLE: Light emitting element and light emitting device using the same
 INVENTOR(S): Kumaki, Daisuke; Seo, Satoshi
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 83 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006049334	A1	20060511	WO 2005-JP20687	20051104
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
JP 2006179869	A	20060706	JP 2005-320957	20051104
CN 101053093	A	20071010	CN 2005-80037984	20051104
US 20080241586	A1	20081002	US 2006-587010	20060721
KR 2007085793	A	20070827	KR 2007-712703	20070605
PRIORITY APPLN. INFO.:			JP 2004-322996 A 20041105	
			JP 2004-342323 A 20041126	
			WO 2005-JP20687 W 20051104	

OTHER SOURCE(S): MARPAT 144:458222
 AB Light-emitting elements comprising (in order) a first electrode, a first layer (or first region), a second layer (or second region), a layer containing a light emitting material, and a second electrode are described in which the first and second layers or regions comprise a bipolar material (e.g., a material having a hole mobility/electron mobility or electron mobility/hole mobility ratio ≤ 100), which may be the same or different in each layer, with, in the first layer (or region) a substance exhibiting an electron accepting ability with respect to the bipolar substance and, in the second layer or

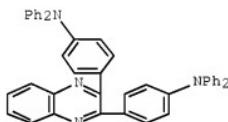
region, a substance exhibiting an electron donating ability with respect to the bipolar substance. Preferably, the bipolar material is a quinoxaline derivative or bisquinoxaline derivative. The thicknesses of the layers may be selected to satisfy a relation that is provided. Displays employing the elements (and devices incorporating the displays) are also described.

IT 787640-67-9P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(light-emitting devices using bipolar materials in electron-injection structures and displays using them)

RN 787640-67-9 HCAPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (CA INDEX NAME)



REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 19 OF 28 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:393159 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 145:356295

TITLE: Quinoxalines incorporating triarylaminos: dipolar electroluminescent materials with tunable emission characteristics

AUTHOR(S): Huang, Tai-Hsiang; Whang, Wha-Tzong; Zheng, He-Gen; Lin, Jiann T'suen

CORPORATE SOURCE: Department of Materials Science and Engineering, National Chiao Tung University, Hsin Chu, 300, Taiwan

SOURCE: Journal of the Chinese Chemical Society (Taipei, Taiwan) (2006), 53(1), 233-242

CODEN: JCCTAC; ISSN: 0009-4536

PUBLISHER: Chinese Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Dipolar compds. (abbreviated as QuPy) featuring quinoxaline acceptors and diarylamine or triarylamine donors were prepared via palladium-catalyzed C-N or C-C bond formation in good yields. They possess high thermal stability with a high decomposition temperature ($T_d > 400$ °C) and exhibit no crystalline character. The emission colors of the materials vary from green to orange red and are dependent on the nature of the electron-withdrawing segments and solvents. Two types of double-layer organic light-emitting diodes (OLEDs) were constructed using these dipolar compds. as hole-transporting/emitting layers and TPBI or Alq₃ as an electron-transporting layer: (I) ITO/QuPy/Alq₃/Mg:Ag and (II) ITO/QuPy/TPBI/Mg:Ag (TPBI = 1,3,5-tris(N-phenylbenzimidazol-2-yl)-benzene; Alq₃ = 1,3,5-tris(N-phenylbenzimidazol-2-yl)-benzene). The recombination zone in most of those devices were confined in the quinoxaline layers. The green to orange colors in these devices correspond well with the film PL of the material used. The relation between

the energy levels of the compds. and the performance of the light-emitting diode are discussed.

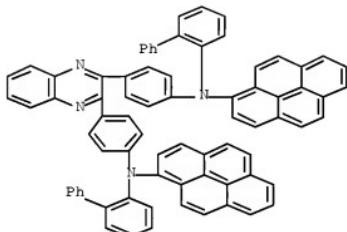
IT 910563-08-5P 910563-10-9P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(quinoxalines incorporating triarylaminies as dipolar electroluminescent materials with tunable emission characteristics)

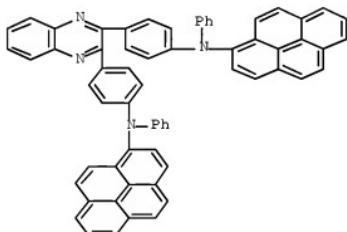
RN 910563-08-5 HCAPLUS

CN 1-Pyrenamine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[N-[1,1'-biphenyl]-2-yl- (9CI) (CA INDEX NAME)



RN 910563-10-9 HCAPLUS

CN 1-Pyrenamine, N,N'-(2,3-quinoxalinediyldi-4,1-phenylene)bis[N-phenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT:

59

THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 20 OF 28 HCAPLUS COPYRIGHT 2009 ACS on STN

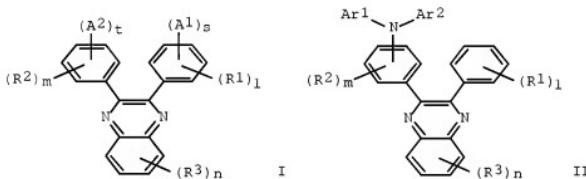
ACCESSION NUMBER: 2006:50981 HCAPLUS Full-text

DOCUMENT NUMBER: 144:117548

TITLE: Organic electroluminescent devices with high luminosity and long lifetime and amines therefor

INVENTOR(S): Totani, Yoshiyuki; Tanabe, Yoshimitsu; Ochi, Takahiko;
 Tsukada, Hidetaka; Shimamura, Takehiko
 PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 64 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006016384	A	20060119	JP 2005-159559	20050531
PRIORITY APPLN. INFO.:			JP 2004-165607	A 20040603
OTHER SOURCE(S):	MARPAT	144:117548		
GI				



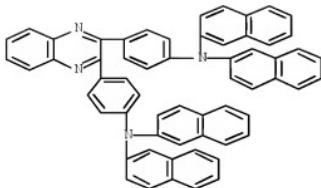
AB The amines are I [R1-R3 = halo, amino, Xn'Z (Z = linear, branched, or cyclic alkyl, aryl, aralkyl; X = O, S; n' = 0, 1); l, m, n = 0-4; A1, A2 = Ar1Ar2N (Ar1, Ar2 = aryl, linear, branched, or cyclic alkyl, aralkyl); s, t = 0-5; s + l ≤ 5; t + m ≤ 5; s and/or t ≥ 1] or II [R1, R2 = halo, Xn'Z (Z, X, n' = same as above); R3 = halo, amino, Xn'Z (Z, X, n' = same as above); l, m, n = 0-4; Ar1, Ar2 = same as above]. Also claimed are organic EL devices (e.g., LCD backlight, planar light sources) having the amines between a pair of electrodes.

IT 873000-37-4

RL: DEV (Device component use); USES (Uses)
 (substituted 2,3-diphenylquinoxalines for organic electroluminescent devices with high luminosity and long lifetime)

RN 873000-37-4 HCPLUS

CN 2-Naphthalenamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis[N-2-naphthalenyl- (9CI) (CA INDEX NAME)]



IT 873000-35-2P 873000-36-3P 873000-38-5P

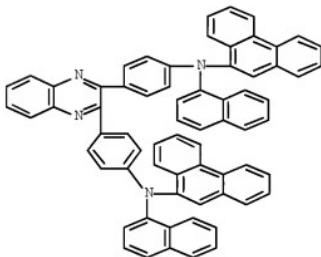
873000-39-6P 873000-40-9P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(substituted 2,3-diphenylquinoxalines for organic electroluminescent devices with high luminosity and long lifetime)

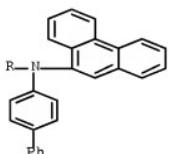
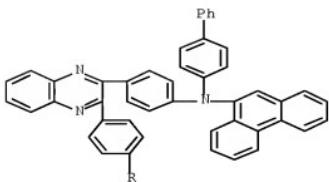
RN 873000-35-2 HCPLUS

CN 9-Phenanthrenamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis[N-1-naphthalenyl- (9CI) (CA INDEX NAME)]



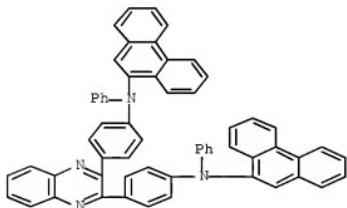
RN 873000-36-3 HCPLUS

CN 9-Phenanthrenamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis[N-(1,1'-biphenyl)-4-yl- (9CI) (CA INDEX NAME)]



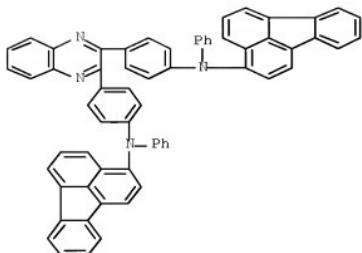
RN 873000-38-5 HCAPLUS

CN 9-Phenanthrenamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis(N-phenyl- (9CI) (CA INDEX NAME)

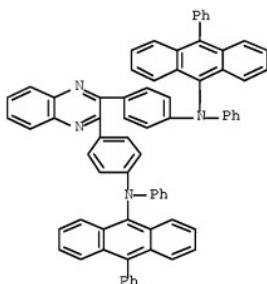


RN 873000-39-6 HCAPLUS

CN 3-Fluoranthanamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis[N-phenyl- (9CI) (CA INDEX NAME)



RN 873000-40-9 HCPLUS
 CN 9-Anthracenamine, N,N'-(2,3-quinoxalinediyl-di-4,1-phenylene)bis[N,10-diphenyl-(9CI) (CA INDEX NAME)]



L37 ANSWER 21 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:1262621 HCPLUS Full-text
 DOCUMENT NUMBER: 144:29490
 TITLE: Light emitting element and light emitting device
 INVENTOR(S): Ohsawa, Nobuharu; Abe, Hiroko; Inoue, Hideko;
 Shitagaki, Satoko; Seo, Satoshi
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 196 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----

WO 2005115061 A1 20051201 WO 2005-JP9310 20050517
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ,
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MN, MW, MX, MZ, NA,
NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,
SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU,
ZA ZM ZW

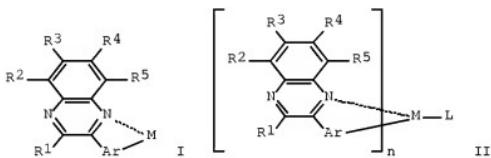
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

EP 1749424 A1 20070207 EP 2005-740951 20050517

R:	DE	FI	FR	GB	NL
CN 1957645	A		20070502	CN 2005-80016049	20050517
JP 2006073992	A		20060316	JP 2005-147413	20050519
US 20070241667	A1		20071018	US 2006-590703	20060825
KR 2007015605	A		20070205	KR 2006-725371	20061201
JP 2007314541	A		20071206	JP 2007-146489	20070601
JP 2008235874	A		20081002	JP 2008-32068	20080213

PRIORITY APPLN. INFO.: JP 2004-151035 A 20040520
JF 2004-226382 A 20040803
JF 2004-231742 A 20040806
WO 2005-JP9310 W 20050517
JP 2005-147413 A3 20050519

OTHER SOURCE(S): MARPAT 144:29490
GI



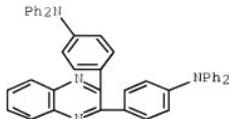
- AB** Light-emitting elements comprising a pair of electrodes (an anode and a cathode) with a light-emitting layer between them are described in which the light-emitting layer includes an organometallic complex described by the general formulas I or II ($R1-5 = H$, halo, acyl, alkyl, alkoxy, aryl, cyano, and/or heterocyclic groups; $Ar =$ an aryl group having an electron-withdrawing group or a heterocyclic group having an electron-withdrawing group; $M =$ a Group 9 or Group 10 element; $n = 2$ if $M =$ Group 9 element; $n = 1$ if $M =$ Group 10 element; and $L =$ anionic ligand) and a compound that has a larger energy gap than the organometallic complex or a compound that has a larger ionization potential and a smaller electron affinity than the organometallic complex. Light-emitting devices using the light-emitting elements are also described.

LIGHT-EMITTER
LT 787640-67-9B

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(host; light-emitting elements employing organometallic compds.)

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 22 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:182186 HCPLUS Full-text
 DOCUMENT NUMBER: 142:268917
 TITLE: Electroluminescent device and light-emitting device including the same
 INVENTOR(S): Seo, Satoshi; Abe, Hiroko; Ohsawa, Nobuharu; Ikeda, Hisao
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 26 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

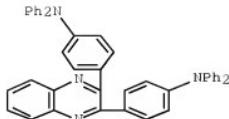
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050048317	A1	20050303	US 2004-926955	20040827
JP 2005100977	A	20050414	JP 2004-246119	20040826
CN 1592522	A	20050309	CN 2004-10074850	20040830

PRIORITY APPLN. INFO.: JP 2003-308077 A 20030829
 AB Driving voltage is reduced for a doped device having a light-emitting layer formed by a host material added with a small amount of a guest material. Specifically, driving voltage is reduced for a doped device formed by a host material added with a red emission material having an electron-withdrawing group as a guest material. Further, color purity of the doped device is improved with reducing driving voltage. Specifically, color purity of the doped device formed by a host material added with a red emission material having an electron-withdrawing group as a guest material is improved with reducing driving voltage. Organic compds. having a hole transportation property were used as a host material 521 for an electroluminescent device having a light-emitting layer 513 formed by the host material 521 and a guest material 522 having an electron-withdrawing group.

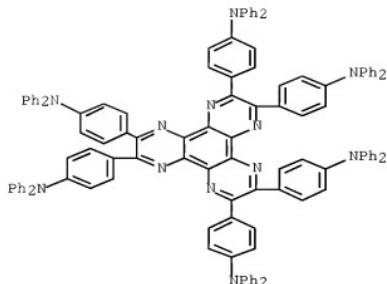
IT 787640-67-9
 RL: DEV (Device component use); USES (Uses)
 (electroluminescent device and light-emitting device containing light emitting layer formed by hole transporting host material doped with electron-withdrawing red emission material)

RN 787640-67-9 HCPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (CA INDEX NAME)



L37 ANSWER 23 OF 28 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:180522 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 143:268278
 TITLE: Fluorescent solvatochromism of bi-polar
N,N-diphenylaminoaryl-substituted
 hexaazatriphenylenes, tetraazaphenanthrene, and
 quinoxalines
 AUTHOR(S): Hirayama, Tomoyuki; Yamasaki, Sumio; Ameku, Hiroki;
 Ishii, Tsutomu; Thiemann, Thies; Mataka, Shuntaro
 CORPORATE SOURCE: Department of Industrial Chemistry, Faculty of
 Engineering, Kyushu Sangyo University, Higashi-ku,
 Fukuoka, 813-8503, Japan
 SOURCE: Dyes and Pigments (2005), 67(2), 105-110
 PUBLISHER: Elsevier Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 143:268278
 AB 1,4,5,8,9,12-Hexaazatriphenylenes, 1,4,5,8-tetraazaphenanthrene, and
 quinoxalines, each with six, four, and two *N,N*-diphenylaminobiphenyl and *N,N*-
 diphenylaminophenyl groups, resp., were prepared and their absorption and
 fluorescent spectral behaviors were investigated. These compds. showed strong
 fluorescent solvatochromism arising from the donor-acceptor nature of the π -
 electron-deficient aromatic core and π -electron-rich diphenylamino terminal
 groups.
 IT 847755-78-6P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or
 engineered material use); PREP (Preparation); USES (Uses)
 (dye; fluorescent solvatochromism of bipolar
 diphenylaminoaryl-substituted hexaazatriphenylenes)
 RN 847755-78-6 HCAPLUS
 CN Benzenamine, 4',4'',4''',4''''',4'''''-dipyrazino[2,3-f:2',3'-
 h]quinoxaline-2,3,6,7,10,11-hexaylhexakis[N,N-diphenyl- (9CI) (CA INDEX
 NAME)

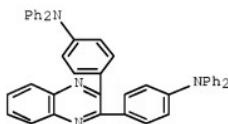


IT 787640-67-9P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (yellow dye; preparation and fluorescent solvatochromism of bipolar diphenylaminoaryl-substituted quinoxalines)

RN 787640-67-9 HCPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (CA INDEX NAME)



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 24 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:99486 HCPLUS Full-text

DOCUMENT NUMBER: 142:186257

TITLE: Quinoxaline derivative and luminescent device employing the compounds

INVENTOR(S): Shitagaki, Satoko; Abe, Hiroko; Seo, Satoshi

PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan

SOURCE: PCT Int. Appl., 60 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

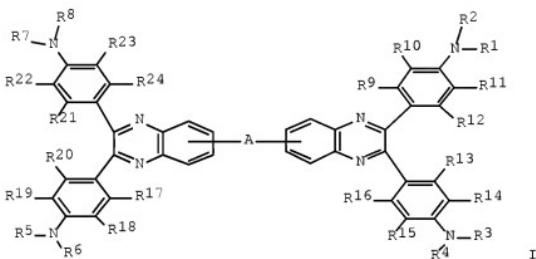
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005009979	A1	20050203	WO 2004-JP9845	20040709

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: BN, GH, GM, KE, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

CN 1829702	A	20060906	CN 2004-80022166	20040709
US 20050065342	A1	20050324	US 2004-900781	20040728
US 7245073	B2	20070717		

PRIORITY APPLN. INFO.:		JP 2003-280764	A 20030728
		WO 2004-JP9845	W 20040709

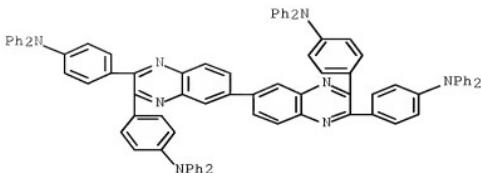
OTHER SOURCE(S): MARPAT 142:186257
 GI



AB The invention relates to quinoxaline derivs. and luminescent device employing them, where the quinoxaline derivative represented by the general formula I, and A represents any one of alkylene chains, silicon, oxygen, nitrogen, and sulfur; R1 to R8 may be the same or different and each represents any of lower alkyl, aryl, and heterocyclic residues; and R9 to R24 may be the same or different and each represents any of hydrogen, halogeno, lower alkyl, alkoxy, acyl, nitro, cyano, amino, dialkylamino, diarylamino, vinyl, optionally substituted aryl, and heterocyclic residues.

IT 835628-35-8P
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (quinoxaline derivs. and luminescent device employing them)

RN 835628-35-8 HCPLUS
 CN Benzenamine, N,N-diphenyl-4-[2',3,3'-tris[4-(diphenylamino)phenyl][6,6'-biquinoxalin]-2-yl]-(CA INDEX NAME)



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 25 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:23045 HCPLUS [Full-text](#)

DOCUMENT NUMBER: 142:306794

TITLE: Combination of an Aromatic Core and Aromatic Side Chains Which Constitutes Discotic Liquid Crystal and Organogel Supramolecular Assemblies

AUTHOR(S): Ishii, Tsutomu; Hirayama, Tomoyuki; Murakami, Koichi; Tashiro, Hiroshi; Thiemann, Thies; Kubo, Kanji; Mori, Akira; Yamasaki, Sumio; Akao, Tetsuyuki; Tsabayama, Akira; Mukaiide, Taihei; Ueno, Kazunori; Mataka, Shuntaro

CORPORATE SOURCE: Institute for Materials Chemistry and Engineering (IMCE), Kyushu University, Kasuga, 816-8580, Japan

SOURCE: Langmuir (2005), 21(4), 1261-1268

CODEN: LANGD5; ISSN: 0743-7463

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB This paper reports unique and unusual formations of columnar liquid crystals and organogels by self-assembling discotic mols., which are composed of an aromatic hexaazatriphenylene (HAT) core and six flexible aromatic side chains. In HAT derivis. 3a, with 4'-(N,N-diphenylamino)biphenyl-4-yl chains, 3b, with 4'-(N-(2-naphthyl)-N-phenylamino)biphenyl-4-yl chains, and 3c, with 4'-phenoxybiphenyl-4-yl chains, the two-dimensional hexagonal packings can be created by their self-assembling in the liquid crystalline phase, which were characterized by polarizing optical microscopy, DSC, and x-ray diffraction anal. In certain solvents, HAT mols. 3a-c can form the viscoelastic fluid organogels, in which 1-dimensional aggregates composed of the HAT mols. are self-assembled and entangled into three-dimensional network structures. The organogel structures were analyzed by SEM observation, ¹H NMR, UV-visible, and CD spectroscopy. In contrast to 3a-c, none of the liquid crystalline and organogel phases could be formed from 3d and 3e with short aromatic side chains including a phenylene spacer, and 3f (except a few specific soins.) and 3g without terminal diarylamino and phenoxy groups. In 3a-c, the aromatic side chains with terminal flexible groups make up soft regions that cooperatively stabilize the liquid crystalline and organogel supramol. structures together with the hard regions of the hexaazatriphenylene core.

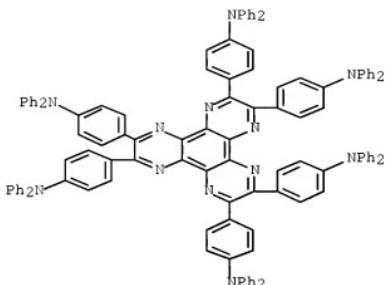
IT 847755-78-6P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(preparation and phase transition temps. and enthalpies of)

RN 847755-78-6 HCPLUS

CN Benzenamine, 4,4',4'',4''',4'''',4'''''-dipyrazino[2,3-f;2',3'-h]quinoxaline-2,3,6,7,10,11-hexaylhexakis[N,N-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 57 THERE ARE 57 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 26 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2004:927180 HCPLUS [Full-text](#)
 DOCUMENT NUMBER: 141:403233
 TITLE: Electroluminescent devices employing quinoxaline derivs
 INVENTOR(S): Shitagaki, Tomoko; Tokuda, Atsushi; Abe, Hiroko;
 Nomura, Ryoji; Seo, Satoshi
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co. Ltd., Japan
 SOURCE: PCT Int. Appl., 89 pp.
 CODEN: PIXDZ
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004094389	A1	20041104	WO 2004-JP5022	20040407
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1616864	A1	20060118	EP 2004-726312	20040407
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				

IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR	
CN 1777592 A 20060524 CN 2004-80010414 20040407	
US 20050186446 A1 20050825 US 2004-826838 20040416	
PRIORITY APPLN. INFO.:	
JP 2003-115102 A 20030418	
JP 2003-302998 A 20030827	
WO 2004-JP5022 W 20040407	

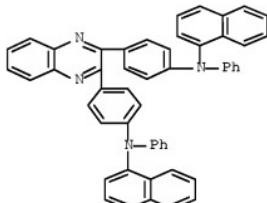
AB The invention relates to electroluminescent devices which comprising organic compound materials having bipolarity, i.e., quinoxaline derivs. represented by the general formula (1): where R1 to R12 are each independently hydrogen, halogeno, lower alkyl, alkoxy, acyl, nitro, cyano, amino, dialkylamino, diarylamino, vinyl, aryl, or a heterocyclic residue; R9 and R10, R10 and R11, or R11 and R12 are each independently an aromatic ring or are bonded to each other to form an aromatic ring; Ar1 to Ar4 are each independently aryl or a heterocyclic residue; and Ar1, Ar2, Ar3, and Ar4 are each independent, or Ar1 and Ar2, or Ar3 and Ar4 are bonded to each other either directly or through oxygen (O), sulfur (S) or carbonyl.

IT 436800-49-6P 787640-67-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(electroluminescent devices employing quinoxaline derivs)

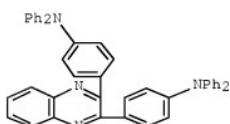
RN 436800-49-6 HCPLUS

CN 1-Naphthalenamine, N,N'-(2,3-quinoxalinediyl-4,1-phenylene)bis[N-phenyl-
(9CI) (CA INDEX NAME)



RN 787640-67-9 HCPLUS

CN Benzenamine, 4,4'-(2,3-quinoxalinediyl)bis[N,N-diphenyl- (CA INDEX NAME)



L37 ANSWER 27 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2002:329583 HCPLUS [Full-text](#)
DOCUMENT NUMBER: 137:39058
TITLE: Quinoxalines Incorporating Triarylamines: Potential

Electroluminescent Materials with Tunable Emission Characteristics

AUTHOR(S): Thomas, K. R. Justin; Lin, Jiann T.; Tao, Yu-Tai;

Chuen, Chang-Hao

CORPORATE SOURCE: Institute of Chemistry, Academia Sinica, Taipei,
TaiwanSOURCE: Chemistry of Materials (2002), 14(6), 2796-2802
CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

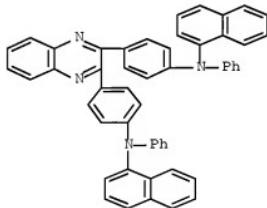
LANGUAGE: English

AB Dipolar compds. featuring quinoxaline acceptors and various triarylamine donors were prepared in good yields and successfully employed in the fabrication of organic light-emitting diodes (OLEDs). Also the emission color of these compds. can be easily tuned from bluish green to orange by suitably modifying the diarylamine and quinoxaline units independently. Increasing the donor and acceptor strengths bathochromically shifts the absorption and emission bands. These mols. possess moderate glass transition temps. (114-152°) and exhibit high decomposition temps. (441-554°). The two-layer OLEDs fabricated using these materials as hole-transporting and emitting layers and 1,3,5-tris(N-phenylbenzimidazol-2-yl)benzene or tris(8-hydroxyquinolinato)aluminum as the electron-transport layer display promising characteristics, i.e., emission color, luminance, and efficiency. Incorporation of the hole-blocking quinoxaline segments in the hole-transporting triarylamine mols. leads to the confinement of the recombination zone in it, and thus emission is realized mainly from these materials for both types of devices. The factors leading to the funneling of light through the hole-transporting layer in these layers are critically analyzed.

IT 436800-49-6 436800-51-0 436800-53-2

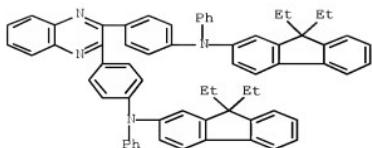
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(quinoxalines incorporating triarylamines as potential
electroluminescent materials with tunable emission characteristics)

RN 436800-49-6 HCPLUS

CN 1-Naphthalenamine, N,N'-(2,3-quinoxalinediylid-4,1-phenylene)bis(N-phenyl-
(9CI) (CA INDEX NAME)

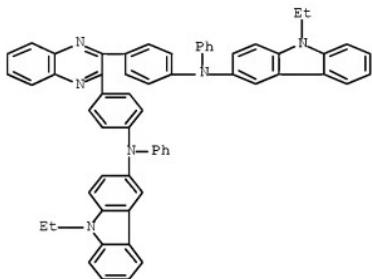
RN 436800-51-0 HCPLUS

CN 9H-Fluoren-2-amine, N,N'-(2,3-quinoxalinediylid-4,1-phenylene)bis[9,9-
diethyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 436800-53-2 HCPLUS

CN 9H-Carbazol-3-amine, N,N'-(2,3-quinoxalinediylidene)-bis[9-ethyl-N-phenyl-] (CA INDEX NAME)



REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L37 ANSWER 28 OF 28 HCPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:175881 HCPLUS [Full-text](#)

DOCUMENT NUMBER: 132:214645

TITLE: Organic electroluminescence device and phenylenediamine derivative

INVENTOR(S): Kawamura, Hisayuki; Hosokawa, Chishio

PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan

SOURCE: PCT Int. Appl., 124 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000014174	A1	20000316	WO 1999-JP4794	19990903
W: CN, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1029909	A1	20000823	EP 1999-940653	19990903

R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI			
CN 1213127	C	20050803	CN 1999-801522	19990903
CN 1733700	A	20060215	CN 2005-10074019	19990903
CN 101096344	A	20080102	CN 2006-10099736	19990903
TW 222965	B	20041101	TW 1999-88115517	19990908
TW 261583	B	20060911	TW 2002-91117339	19990908
JP 2000309566	A	20001107	JP 1999-256280	19990909
KR 841842	B1	20080627	KR 2000-704003	20000414
US 6541129	B1	20030401	US 2000-530597	20000509
US 20030143430	A1	20030731	US 2002-331645	20021231
US 20060082294	A1	20060420	US 2005-201263	20050811
US 7399537	B2	20080715		
KR 2006085255	A	20060726	KR 2006-712880	20060627
KR 805451	B1	20080220		
KR 837029	B1	20080610	KR 2007-712605	20070604
US 20080241591	A1	20081002	US 2008-131977	20080603
PRIORITY APPLN. INFO.:			JP 1998-255563	A 19980909
			JP 1999-47110	A 19990224
			JP 1998-25563	A 19980909
			CN 1999-801522	A3 19990903
			CN 2005-10074019	A3 19990903
			WO 1999-JP4794	W 19990903
			KR 2000-704003	A3 20000414
			US 2000-530597	A3 20000509
			US 2002-331645	B1 20021231
			US 2005-201263	A1 20050811

OTHER SOURCE(S): MARPAT 132:214645

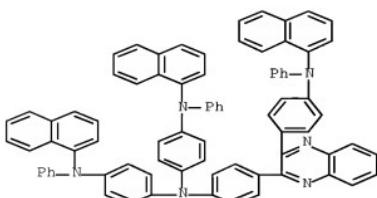
AB An organic electroluminescence device having a low driving voltage and a long life and a material having a small ionization potential and providing a large hole mobility are disclosed. The organic electroluminescence device comprises an organic electroluminescent layer containing a charge injection assisting material, and a hole transport region containing a phenylenediamine derivative expressed by a specific structural formula and having a hole mobility of 10^{-4} cm 2 /V·s or more, the both layer being sandwiched between a pair of electrodes.

IT 260550-94-5

RL: DEV (Device component use); USES (Uses)
(organic electroluminescence device containing phenylenediamine derivative)

RN 260550-94-5 HCPLUS

CN 1,4-Benzenediamine, N1-1-naphthalenyl-N4-[4-(1-naphthalenylphenylamino)phenyl]-N4-[4-[3-[4-(1-naphthalenylphenylamino)phenyl]-2-quinoxalinyllphenyl]-N1-phenyl- (CA INDEX NAME)



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=>
=>